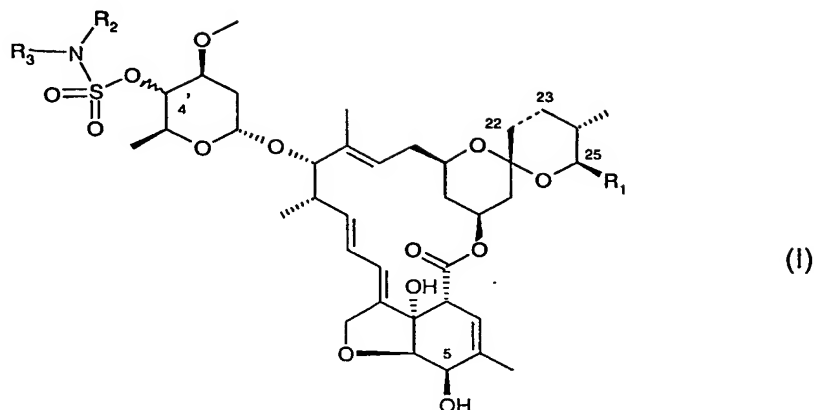


What is claimed is:

## 1. A compound of formula



wherein the bond between carbon atoms 22 and 23 may be a single or a double bond;

5  $R_1$  is  $C_1$ - $C_{12}$ alkyl,  $C_3$ - $C_8$ cycloalkyl, or  $C_2$ - $C_{12}$ alkenyl;

$R_2$  and  $R_3$  are independently of each other hydrogen,  $C_1$ - $C_{12}$ alkyl,  $C_3$ - $C_{12}$ cycloalkyl,  $C_2$ - $C_{12}$ alkenyl,  $C_2$ - $C_{12}$ alkynyl, aryl or heteroaryl; wherein the  $C_1$ - $C_{12}$ alkyl,  $C_3$ - $C_{12}$ cycloalkyl,  $C_2$ - $C_{12}$ alkenyl,  $C_2$ - $C_{12}$ alkynyl, aryl and heteroaryl radicals may be unsubstituted or mono- to penta-substituted;  $-C(=O)R_4$  or  $SO_2R_4$ ; or

10  $R_2$  and  $R_3$  together are a three- to seven-membered alkylene bridge or a four- to seven-membered alkenylene bridge wherein one or two  $CH_2$  groups in the alkylene or alkenylene may have been replaced by O, S or  $NR_5$ ; or are a group  $=N^+=N^+$ ;

and wherein the substituents of the alkyl, alkenyl, alkynyl, alkylene, alkenylene, cycloalkyl, aryl and heteroaryl radicals defined under  $R_2$  and  $R_3$  are selected from the group

15 consisting of OH; =O; SH; =S;  $-NH_2$ ; CN;  $NO_2$ ; halogen;  $C_1$ - $C_{12}$ alkyl; halo- $C_1$ - $C_2$ alkyl;  $C_1$ - $C_{12}$ alkenyl;  $C_2$ - $C_6$ alkynyl;  $C_3$ - $C_8$ cycloalkyl which is unsubstituted or substituted by from one to three methyl groups; norbornenyl;  $C_3$ - $C_8$ cycloalkenyl that is unsubstituted or substituted by from one to three methyl groups;  $C_3$ - $C_8$ halocycloalkyl;  $C_1$ - $C_{12}$ alkoxy;  $C_1$ - $C_6$ -alkoxy- $C_1$ - $C_6$ alkyl;  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkoxy;  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkyl;

20  $C_2$ - $C_{12}$ alkenyloxy;  $C_2$ - $C_{12}$ alkenyloxy- $C_1$ - $C_6$ alkoxy;  $C_3$ - $C_8$ cycloalkoxy;  $C_1$ - $C_{12}$ haloalkoxy;  $C_1$ - $C_{12}$ alkylthio;  $C_3$ - $C_8$ cycloalkylthio;  $C_1$ - $C_{12}$ haloalkylthio;  $C_1$ - $C_{12}$ alkylsulfinyl;  $C_3$ - $C_8$ cycloalkylsulfinyl;  $C_1$ - $C_{12}$ haloalkylsulfinyl;  $C_3$ - $C_8$ halocycloalkylsulfinyl;  $C_1$ - $C_{12}$ alkylsulfonyl;  $C_3$ - $C_8$ cycloalkylsulfonyl;  $C_1$ - $C_{12}$ haloalkylsulfonyl;  $C_3$ - $C_8$ halocycloalkylsulfonyl;  $C_2$ - $C_8$ alkenyl;  $C_2$ - $C_8$ alkynyl;  $-NH(C_1$ - $C_6$ alkyl);  $-N(C_1$ - $C_6$ alkyl) $_2$ ;  $-C(=O)R_6$ ;  $-NHC(=O)R_7$ ;  $-P(=O)(OC_1$ - $C_6$ alkyl) $_2$ ; aryl; hetero-

cyclyl; aryloxy; and heterocyclyloxy;

wherein the aryl, heterocyclyl, aryloxy and heterocyclyloxy radicals are unsubstituted or, depending upon the possibilities of substitution at the ring, mono- to penta-substituted by substituents selected from the group consisting of

5 OH; halogen; CN; NO<sub>2</sub>; C<sub>1</sub>-C<sub>12</sub>alkyl; C<sub>3</sub>-C<sub>8</sub>cycloalkyl; C<sub>1</sub>-C<sub>12</sub>haloalkyl; C<sub>1</sub>-C<sub>12</sub>alkoxy; C<sub>1</sub>-C<sub>12</sub>haloalkoxy; C<sub>1</sub>-C<sub>12</sub>alkylthio; C<sub>1</sub>-C<sub>12</sub>haloalkylthio; C<sub>1</sub>-C<sub>12</sub>alkylsulfinyl; C<sub>1</sub>-C<sub>12</sub>alkylsulfonyl; C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkyl; dimethylamino--C<sub>1</sub>-C<sub>6</sub>alkoxy; C<sub>2</sub>-C<sub>8</sub>alkenyl; C<sub>2</sub>-C<sub>8</sub>alkynyl; phenyl-C<sub>1</sub>-C<sub>6</sub>alkyl; phenoxy that is unsubstituted or substituted by from one to three substituents selected

10 independently of one another from halogen, methoxy, trifluoromethyl and trifluoromethoxy; phenyl-C<sub>1</sub>-C<sub>6</sub>alkoxy that is unsubstituted or substituted in the aromatic ring by from one to three substituents selected independently of one another from halogen, methoxy, trifluoromethyl and trifluoromethoxy; phenyl-C<sub>2</sub>-C<sub>6</sub>alkenyl; phenyl-C<sub>2</sub>-C<sub>6</sub>alkynyl; methylenedioxy; -C(=O)R<sub>6</sub>;

15 -O-C(=O)R<sub>7</sub>; -NH-C(=O)R<sub>7</sub>; -NH<sub>2</sub>; -NH(C<sub>1</sub>-C<sub>12</sub>alkyl); -N(C<sub>1</sub>-C<sub>12</sub>alkyl)<sub>2</sub>; C<sub>1</sub>-C<sub>6</sub>alkylthio; C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl; C<sub>3</sub>-C<sub>8</sub>cycloalkylsulfinyl; C<sub>1</sub>-C<sub>6</sub>haloalkylsulfinyl; C<sub>3</sub>-C<sub>8</sub>halocycloalkylsulfinyl; C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl; C<sub>3</sub>-C<sub>8</sub>cycloalkylsulfonyl; C<sub>1</sub>-C<sub>6</sub>haloalkylsulfonyl; and C<sub>3</sub>-C<sub>8</sub>halocycloalkylsulfonyl;

R<sub>4</sub> is H; C<sub>1</sub>-C<sub>8</sub>alkyl; C<sub>1</sub>-C<sub>8</sub>alkyl that is mono- to hepta-substituted by substituents

20 selected from the group consisting of halogen, nitro, C<sub>1</sub>-C<sub>8</sub>alkoxy, aryloxy, OH, SH, -NH<sub>2</sub>, -NH(C<sub>1</sub>-C<sub>12</sub>alkyl) and -N(C<sub>1</sub>-C<sub>12</sub>alkyl)<sub>2</sub>; C<sub>1</sub>-C<sub>8</sub>alkoxy; halo-C<sub>1</sub>-C<sub>8</sub>alkoxy; C<sub>3</sub>-C<sub>8</sub>cycloalkyl; C<sub>3</sub>-C<sub>8</sub>cycloalkoxy; C<sub>2</sub>-C<sub>8</sub>alkenyl; halo-C<sub>2</sub>-C<sub>8</sub>alkenyl; C<sub>2</sub>-C<sub>8</sub>alkenyloxy; halo-C<sub>2</sub>-C<sub>8</sub>alkenyloxy; C<sub>2</sub>-C<sub>8</sub>alkynyl; C<sub>2</sub>-C<sub>8</sub>alkynyloxy; -NH<sub>2</sub>; -NH(C<sub>1</sub>-C<sub>12</sub>alkyl); -N(C<sub>1</sub>-C<sub>12</sub>alkyl)<sub>2</sub>; aryl; aryloxy; benzyl; benzyloxy; heterocyclyl; heterocyclyloxy; heterocyclylmethyl; heterocyclylmethoxy; -NH-aryl;

25 -NH-heterocyclyl; -N(C<sub>1</sub>-C<sub>6</sub>alkyl)-aryl; or -N(C<sub>1</sub>-C<sub>6</sub>alkyl)-heterocyclyl;

wherein the radicals aryl, aryloxy, benzyl, benzyloxy, heterocyclyl, heterocyclyloxy, heterocyclylmethyl, heterocyclylmethoxy, -NH-aryl, -NH-heterocyclyl, -N(C<sub>1</sub>-C<sub>6</sub>alkyl)-aryl and -N(C<sub>1</sub>-C<sub>6</sub>alkyl)-heterocyclyl are unsubstituted or, depending upon the possibilities of substitution at the ring, are in the ring

30 substituted by from one to three substituents selected independently of one another from halogen, C<sub>1</sub>-C<sub>12</sub>alkyl, C<sub>1</sub>-C<sub>12</sub>haloalkyl, C<sub>1</sub>-C<sub>12</sub>alkoxy, C<sub>1</sub>-C<sub>12</sub>haloalkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>12</sub>alkylthio, C<sub>1</sub>-C<sub>12</sub>haloalkylthio, C<sub>1</sub>-C<sub>12</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>alkylsulfonyl, C<sub>2</sub>-C<sub>8</sub>alkenyloxy, C<sub>2</sub>-C<sub>8</sub>alkynyloxy, nitro, -N<sub>3</sub>, and cyano;

$R_5$  is  $C_1$ - $C_8$ alkyl,  $C_3$ - $C_8$ cycloalkyl,  $C_2$ - $C_8$ alkenyl,  $C_2$ - $C_8$ alkynyl, benzyl,  $-C(=O)-R_8$  or  $-C(=S)-R_8$ ;

$R_6$  is H; OH; SH;  $C_1$ - $C_8$ alkyl;  $C_1$ - $C_8$ alkyl which is mono- to hepta-substituted by substituents selected from the group consisting of halogen, nitro,  $C_1$ - $C_8$ alkoxy, aryloxy, OH, SH,  $-NH_2$ ,  $-NH(C_1-C_{12}alkyl)$  and  $-N(C_1-C_{12}alkyl)_2$ ;  $C_1$ - $C_8$ alkoxy; halo- $C_1$ - $C_8$ alkoxy;  $C_3$ - $C_8$ cycloalkyl;  $C_3$ - $C_8$ cycloalkoxy;  $C_2$ - $C_8$ alkenyl;  $C_2$ - $C_8$ alkenyloxy;  $C_2$ - $C_8$ alkynyl;  $C_2$ - $C_8$ alkynyloxy;  $-NH_2$ ;  $-NH(C_1-C_{12}alkyl)$ ;  $-N(C_1-C_{12}alkyl)_2$ ; aryl; aryloxy; benzyl; benzyloxy; heterocyclyl; heterocyclyloxy; heterocyclylmethyl; or heterocyclylmethoxy;

wherein the radicals aryl, aryloxy, benzyl, benzyloxy, heterocyclyl, heterocyclyloxy, heterocyclylmethyl and heterocyclylmethoxy are unsubstituted or, depending upon the possibilities of substitution at the ring, are substituted by from one to three substituents selected independently of one another from halogen,  $C_1$ - $C_{12}alkyl$ ,  $C_1$ - $C_{12}haloalkyl$ ,  $C_1$ - $C_{12}alkoxy$ ,  $C_1$ - $C_{12}haloalkoxy$ ,  $C_1$ - $C_6alkoxy-C_1-C_6alkoxy$ ,  $C_1$ - $C_{12}alkylthio$ ,  $C_1$ - $C_{12}haloalkylthio$ ,  $C_1$ - $C_{12}alkylsulfinyl$ ,  $C_1$ - $C_{12}alkylsulfonyl$ ,  $C_2$ - $C_8alkenyloxy$ ,  $C_2$ - $C_8alkynyloxy$ , nitro,  $-N_3$ , and cyano;

$R_7$  is H,  $C_1$ - $C_{12}alkyl$ ,  $C_1$ - $C_6alkoxy-C_1-C_6alkyl$ ,  $C_1$ - $C_{12}haloalkyl$ ,  $C_2$ - $C_8alkenyl$ ,  $C_2$ - $C_8alkynyl$ , aryl, heterocyclyl, benzyl,  $-NH_2$ ,  $-NH(C_1-C_{12}alkyl)$ ,  $-N(C_1-C_{12}alkyl)_2$ ,  $-NH-phenyl$  or  $-N(C_1-C_{12}alkyl)-phenyl$ ;

$R_8$  is H, OH, SH,  $-NH_2$ ,  $-NH(C_1-C_{12}alkyl)$ ,  $-N(C_1-C_{12}alkyl)_2$ ,  $C_1$ - $C_{12}alkyl$ ,  $C_1$ - $C_{12}haloalkyl$ ,  $C_1$ - $C_{12}alkoxy$ ,  $C_1$ - $C_{12}haloalkoxy$ ,  $C_1$ - $C_6alkoxy-C_1-C_6alkyl$ ,  $C_1$ - $C_6alkoxy-C_1-C_6alkoxy$ ,  $C_1$ - $C_{12}alkylthio$ ,  $C_1$ - $C_{12}alkylsulfinyl$ ,  $C_1$ - $C_{12}alkylsulfonyl$ ,  $C_2$ - $C_8alkenyloxy$ ,  $C_2$ - $C_8alkynyloxy$ , phenyl, phenoxy, benzyloxy,  $-NH-phenyl$ ,  $-N(C_1-C_6alkyl)-phenyl$ ,  $-NH-C_1-C_6alkyl-C(=O)-R_9$ ,  $-N(C_1-C_6alkyl)-C_1-C_6alkyl-C(=O)-R_9$ , or phenyl, phenoxy, benzyloxy,  $-NH-phenyl$  or  $-N(C_1-C_6alkyl)-phenyl$ , each of which is substituted in the aromatic ring by from one to three substituents selected independently of one another from halogen,  $C_1$ - $C_6alkoxy$ ,  $C_1$ - $C_6haloalkyl$  and  $C_1$ - $C_6haloalkoxy$ ; and

$R_9$  is H, OH,  $C_1$ - $C_{12}alkyl$ ,  $C_1$ - $C_{12}alkoxy$ ,  $C_1$ - $C_6alkoxy-C_1-C_6alkoxy$ ,  $C_2$ - $C_8alkenyloxy$ , phenyl, phenoxy, benzyloxy,  $-NH_2$ ,  $-NH(C_1-C_{12}alkyl)$ ,  $-N(C_1-C_{12}alkyl)_2$ ,  $-NH-phenyl$  or  $-N(C_1-C_{12}alkyl)-phenyl$ ;

and, where applicable, to E/Z isomers, mixtures of E/Z isomers, diastereomers and/or tautomers, in each case in free form or in salt form.

2. A pesticidal composition comprising as active ingredient at least one compound of formula (I) as defined in claim 1, and at least one adjuvant.

3. A method of controlling pests, which comprises applying a composition as defined in claim 2 to the pests or to their habitat.

5 4. A process for the preparation of a composition comprising at least one adjuvant, as defined in claim 2, which comprises intimately mixing and/or grinding the active ingredient with the adjuvant(s).

5. Use of a compound of formula (I) as defined in claim 1 in the preparation of a composition as defined in claim 2.

6. Use of a composition as defined in claim 2 in controlling pests.

10 7. A method for the protection of plant propagation material, which comprises treating the propagation material or the planting site of the propagation material with a pesticidal composition as defined in claim 2.

8. Plant propagation material treated in accordance with the method defined in claim 7.

9. A tank mix composition comprising a pesticidal composition defined in claim 2.